Math 357
Long quiz 01

2024–01–19 (F)

Your name: _____

(a) Let R be a ring; let $a, b, c \in R$; and suppose that a is not a zero divisor. Prove the left-cancellation law: If $ab = ac$, then $a = 0$ or $b = c$.

(b) Let R and S be commutative rings with (multiplicative) identity, let $a \in R$ be a zero divisor, and let $f : R \to S$ be a ring homomorphism such that $f(a) \in S^{\times}$. Show that f is not injective.